

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Tomoo SUGAWARA

Serial No.: 10/567,257

Filed: February 6, 2006

For: POLYMERIZABLE COMPOSITION AND MOLDED PRODUCT
THEREOF

DECLARATION UNDER 37 CFR 1.132

Honorable Commissioner of Patents and Trademarks,
P. O. Box 1450, Alexandria, VA 22313-1450

Sirs:

I, Shigeru FUJITA, a Japanese citizen, residing at 6-2, Marunouni 1-chome, Chiyoda-ku, Tokyo, Japan, hereby declare and state that I have been employed by ZEON Corporation (assignee of the present application) since April 1993. I also declare that I engaged in researching characteristic properties and applications of various specialty rubbers (epichlorhydrin rubbers, hydrogenated acrylonitrile-butadiene rubbers etc.) from July 1993 to October 2005, and I have been engaging in researching ring-opening metathesis polymerization-related technologies since November 2005.

I declare that I have read all of the documents concerning the above-entitled patent application, and am familiar with the contents of the present invention in this application.

I further declare that the following experiments were conducted by myself and that the results of the experiments are all true and correct to the best of my own knowledge.

[Experiments]

Experiments were conducted in accordance with the following items.

1. Object of Experiment
2. Experiments
3. Evaluation
4. Note

1. Object of Experiment

Additional Experiments were conducted to prove the value of the inventions recited in the amended claims.

2. Experiments

(1) Experiment 1

Put into a 100 ml polyethylene bottle were 85 g of tetracyclo [9.2.1.0^{2,10}.0^{3,8}] tetradeca-3,5,7,12-tetraene as an aromatically condensed ring-containing cycloolefin monomer, 10 g of tetracyclo [4.4.0.1^{2,5}.1^{7,10}] dodec-3-ene and 5 g of 2-norbornene as other cycloolefin monomer, 12 g of magnesium hydroxide, 4.5 g of melamine polyphosphate and 1.5 g of red phosphorus as a flame retardant, 0.54 ml (0.51 g) of allyl methacrylate as a chain transfer agent, 0.43 ml (0.34 g) of di-t-butyl peroxide (one minute half-life temperature of 186°C) as a radical generating agent, 0.084 g of 3,5-di-t-butylhydroxyanisole as a radical crosslinking retarder and 0.3 g of PLENACT AL-M (aluminate coupling agent, manufactured by Ajinomoto-Fine-Techno Co., Inc.) as a dispersant. Thereafter, 0.31 ml of toluene solution thereof benzilidene(1,3-dimesitylimiazolidin-2-ylidene)(tricyclohexylphosphine)ruthenium dichloride with a concentration of 0.05 mol/l (containing triphenylphosphine at a concentration of 0.25 mol/l) as a metathesis polymerization catalyst was added into the mixture while stirring to prepare a polymerizable composition.

Two glass cloths (cut off each in size of 200 mm × 200 mm with a thickness of 0.174 mm, with a trade name 7628/AS891AW, manufactured by

ASAHI-SHWEBEL CO., LTD) were placed on a glass fiber reinforced PTFE resin film (cut off in size of 300 mm × 300 mm, with a thickness of 0.08 mm, with a product number 5310, manufactured by SAINT-GOBAIN KK), then the polymerizable composition was poured over the glass cloths, then another glass fiber reinforced PTFE resin film same as the above was laminated thereon, and then the laminate was press rolled to be impregnated with the polymerizable composition.

Then, the laminate was placed on a hot plate heated at 145°C for 1 minute to polymerize the monomer. Thereafter, the glass fiber reinforced PTFE resin films adhered to the both surface of the laminate were peeled off to obtain a prepreg.

The three prepregs (cut off each in size of 87 mm × 87 mm) were put into a mold frame in the shape of framed rectangle and in inner size of 90 mm × 90 mm (with a thickness of 1 mm), sandwiched by using PTFE films with a thickness of 0.05 mm, and then the laminate was heat pressed under a pressure of 4.1 MPa at 200°C for 15 minutes. Thereafter, the heat pressed laminate was cooled down while being kept under the pressure and the laminate was taken out from the press after the temperature of cooled down to 100°C or less.

(2) Experiment 2

A laminate was formed in the same manner as in Experiment 1 except that 100 g of tetracyclo [9.2.1.0^{2,10}.0^{3,8}] tetradeca-3,5,7,12-tetraene was used as an aromatically condensed ring-containing cycloolefin monomer and that no other cycloolefin monomer was used.

3. Evaluation

(1) Experiment 1

The UL94 20 mm vertical flame test was conducted to the laminate obtained in Experiment 1, and it was confirmed that the laminate had the evaluation (V-0) of the highest flame retardance. The flaming time was 7

seconds.

The bending strength of the obtained laminate was measured in accordance with JIS C 6481 and it was 370 N/mm².

(2) Experiment 2

The UL94 20 mm vertical flame test was conducted to the laminate obtained in Experiment 2, and it was confirmed that the laminate had the evaluation (V-0) of the highest flame retardance. The flaming time was 2 seconds.

The bending strength of the obtained laminate was measured in accordance with JIS C 6481 and it was 320 N/mm².

4. Note

The UL94 20 mm vertical flame test was conducted to the laminates obtained in Comparative Examples 1 and 2 disclosed in the specification for the present application. The flaming time was 30 seconds or more for both laminates.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated this 8th day of June, 2007

Shigeru Fujita
Shigeru FUJITA